

PATENT SPECIFICATION

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(54) IMPROVEMENTS IN OR RELATING TO FLOOR COVERINGS

We, SOCIETE ANONYME
OMINUM DE PROSPECTIVE
INDUSTRIELLE, a French Body Cor-
porate of 2, rue Jean de Caulaincourt, 02-
SAINT-QUENTIN (Aisne) France, do
hereby declare the invention, for which we
pray that a patent may be granted to us, and
the method by which it is to be performed,
to be particularly described in and by the
following statement:—

The present invention relates to floor
coverings.

According to the present invention, there
is provided a composite floor covering com-
prising an underlayer and a layer of fabric
adhered to the upper surface of the un-
derlayer, the upper surface of the fabric
layer constituting the upper tread surface of
the floor covering and the underlayer being
such that its density at its upper surface is
greater than that at its lower surface and
that its density does not increase with in-
creasing distance from the upper surface of
the underlayer.

Embodiments of the invention will now
be described, by way of example only.

One preferred embodiment of a floor
covering comprises an underlayer made
of a supple cellular material having a
varying porosity throughout its thickness
whereby the density of the layer
varies throughout its thickness. More
particularly, the density decreases as a func-
tion of distance away from the upper sur-
face of the layer. The upper surface of the
layer which has the highest density is
secured to a fabric layer, whilst the lower
surface of the layer, which surface has the
lowest density, will be in contact with the
floor. According to the thickness of the un-
derlayer and the type of cellular material
used, this density can vary for example from
between 1200 kg/m³ for the upper surface of
the underlayer, and 200 kg/m³ for the lower
surface of the underlayer.

It is possible to manufacture such an un-
derlayer, but the degree of expansion must
be closely controlled during manufacture. It
is therefore preferred to form the un-
derlayer from a plurality of different layers
each of different density which are con-
nected together to form an assembly whose
density varies stepwise throughout its
thickness. Preferably, the average density of
the underlayer is about 500 to 600 kg/m³.

According to another embodiment, the
underlayer can be constituted by an ex-
panded synthetic foam, for example of
polyurethane, the density of which after ex-
pansion is 500 kg/m³. However, in order to
obtain the desired properties, the upper sur-
face of the foam is strengthened by incor-
porating, at the moment of expansion, a
web which serves to increase the density at
this surface.

The underlayer can alternatively be formed
by using expanded PVC with a density of
200 to 300 kg/m³. The desired density
characteristics are obtained by adhering a
sheet of high density PVC to the upper sur-
face at the moment of expansion; in this
case, a complex can be obtained which has
three different density zones, namely: an
upper zone onto which the fabric is
adhered, the density of which zone is
between 1000 and 1200 kg/m³ according to
the material used, a second zone of very
small thickness and having a density of
about 500 kg/m³, resulting from the
adhesive used for the high density layer, and
finally a zone of density of 200 to 300 kg/m³.

A woven fabric for example a velvet-type
woven fabric having a weight of between 70
and 120 g/m² is applied to the upper surface
of the underlayer. Thus there is obtained a
floor covering which has the mechanical
characteristics of suppleness, and
resistance to wear and tear and to stamping
which are conferred by the underlayer with
the varying density. The fabric layer which

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2	constitutes the outer surface of the floor covering can be made with synthetic fibres which provide good resistance to abrasion and, moreover, if this fabric is a brushed knitted fabric, it will be advantageous to break the loops thus formed, in order to further improve the resistance to abrasion and to increase the length of the pile, whereby the floor covering has the appearance of a conventional pile carpet.	50
5		55
10	In this latter case, it is useful to fix the stitch after the brushing and loop breaking operations. This operation may be effected either at the time at which the fabric is adhered to the underlayer, or directly on the reverse side of the knitted fabric with the aid of a finish. Furthermore, the adherence of the fabric to the underlayer can be further increased by using a brushed knitted fabric, the loops of which are broken on the upper surface and only slightly brushed on the lower surface.	60
15	The fabric may be dyed or printed according to conventional techniques used in the textile industry. It is however advantageous to effect this finishing operation only when the fabric has been adhered to one of the elements of the cellular underlayer. In fact, it is possible in this case to use the thermal energy necessary for terminating the cellular expansion in order to ensure the fixing of the dyes or pigments used.	65
20	In the floor covering particularly described, the defects that would occur if a light-weight fabric were glued to an underlayer having a constant density throughout its thickness, are avoided, such defects being insufficient resistance to wear and tear and lack of suppleness of the covering.	70
25	The covering particularly described has an underlayer which acts to absorb shock and imparts to the covering, properties of suppleness, and resistance to wear and tear, and to abrasion and stamping. Further, the underlayer enables a light-weight woven fabric to be used to form the upper layer of the covering.	75
30	WHAT WE CLAIM IS:—	10
35	1. A composite floor covering comprising	15
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